DOH-Construction Review Services

The Square Knot

Volume 3, Issue 1
January 2004

A publication to join in a partnership, with our customers, for world class healthcare.

Washington State Department of Health
CONSTRUCTION REVIEW SERVICES

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Automatic Fire Sprinkler Systems in Licensed Care Facilities

When is a licensed care facility, such as a boarding home, required to have an automatic fire sprinkler system? This article pertains to new construction as defined by the licensing regulations. New construction generally means a new facility or addition. However, an existing facility that is not currently licensed but wishes to become licensed, such as an apartment building, is also defined as new construction with the need to meet all requirements as if it were just being built. Another example of what is considered new construction would be an existing licensed boarding home that wishes to provide a new service, or different level of service, such as providing for residents with evacuation capacities of Level II and/or III, as defined below, while the facility was only approved for residents with Level 1 evacuation capacity.

Currently, a licensed care facility is classified as a Group LC Occupancy by Section 313 found in the Washington State Amendments to the 1997 Uniform Building Code (UBC). The Group LC Occupancy classification covers facilities that are licensed by either the Washington State Department of Health (DOH) or the Department of Social and Health Services (DSHS) to provide care to clients.

The requirements for sprinklers may be found in Section 318.8.2.1 UBC. An automatic fire sprinkler system may be required by either the height of the building (three or more stories), or the number of clients (residents), the evacuation capacity of the clients, or a combination thereof.

Evacuation capacity is defined in Section 313.4.1 in the Washington State Amendments as being Levels I, II, and III. As time passes a client may change levels because of age, illness, or injury.

A Level I classification means "persons physically and mentally capable of walking or traversing a normal path to safety, including the ascent and descent of stairs, and capable of self-preservation, without the physical assistance of another person."

A Level II classification means "persons physically and mentally capable of traversing a normal path to safety with the use of mobility aids, but unable to ascend or descend stairs without the physical assistance of another person."

A Level III classification means "persons physically or mentally unable to walk or traverse a normal path to safety without the physical assistance of another person."

Facilities classified as a Group LC Occupancy and that are three or more stories in height are required to have an automatic fire sprinkler system no matter the number or evacuation capacity of the clients.

Hand Hygiene in Retail & Food Service Establishments

The Food and Drug Administration (FDA) and the Centers for Disease Control and Prevention (CDC) are working together to control the transmission of pathogens that can result in foodborne illnesses. Transmission of pathogenic bacteria, viruses and parasites from raw food or from ill workers to food by way of improperly washed hands continues to be one of several major factors in the spread of foodborne illnesses.

FDA's Food Code contains the Federal recommendations for preventing foodborne illness in restaurants, grocery stores, institutions and vending locations. Local, state and federal regulators use the FDA Food Code as a model to help develop or update their own food safety rules and to be consistent with national food regulatory policy. The Food Code contains specific hand hygiene guidance for retail and food service workers describing when, where, and how to wash and sanitize hands. Hand sanitizers, meeting specific criteria described in Section 2-301.16 of the Food Code, may be used **after proper hand washing** in retail and food service.

CAN ALCOHOL-BASED HAND GELS SERVE AS A SUITABLE ALTERNATIVE TO HANDWASHING FOR RETAIL and FOOD SERVICE WORKERS?

CDC recently issued "*CDC Guideline for Hand Hygiene in Healthcare Settings*" (Morbidity and Mortality Weekly Reports, October 25, 2002). The guidance document recommends alcohol-based hand gel as a suitable alternative to handwashing for health-care personnel in ***health-care settings***. These guidelines were not intended to apply to food establishments. This exclusion is based on the differences in controlling common nosocomial pathogens in health-care settings and common foodborne pathogens in retail and food service settings. Some significant differences between health-care settings and retail/food service settings include:

1. TYPES OF PATHOGENS

The pathogens most commonly transmitted by hands in health-care settings differ from those in retail and food service settings. In health-care, nosocomial bacterial pathogens and lipophilic viruses predominate, while in food service and retail establishments we are primarily concerned with a different set of fecal pathogens. Common nosocomial pathogens are typically transmitted from person-to-person in health-care settings. In retail and food service settings, foodborne pathogens are transmitted through the fecal-oral route from contaminated hands to food items. Controlling the transmission of fecal bacteria, enteric non-lipophilic viruses, and protozoan oocysts, which can contaminate hands with a very high titer, is a particular concern. CDC estimates the non-lipophilic virus, Norovirus (Norwalk-like virus) to be the leading cause of foodborne illness in the United States.

2. EFFICACY AND APPROVAL HAND GELS

All alcohol-based hand gels applied to human skin are drugs, and must be covered by FDA's Over-the-Counter (OTC) Drug Review or by an FDA-approved new drug application to be legally marketed in the United States. Further, all ingredients, including emollients and perfumes that are constituents of alcohol hand gels used in retail and food service operations must be approved as indirect food additives.

Some in vitro and in vivo published studies suggest that alcohol-based hand gels are highly effective against nosocomial bacterial pathogens of major concern in healthcare settings. However the antimicrobial efficacy of alcohol-containing handwashes for use in any setting remains under review by FDA. Some published studies also indicate that moisture on the hands may interfere with alcohol efficacy. In addition, alcohol has been shown to be ineffective against protozoan oocysts and, depending on the alcohol concentration, time, and viral variant, alcohol may not be effective against hepatitis A, or other non-lipophilic viruses.

3. SOIL ON HANDS

The types and levels of soil on the hands of health-care workers differ from food service/retail workers. The type of activities conducted in retail and food service may lead to increased potential for fatty and proteinaceous materials to be on the hands. The fatty and proteinaceous materials may or may not be visible on the hands. Proteinaceous material is known to interfere with and neutralize alcohol efficacy. Fatty substances can coat and protect pathogens from the action of alcohol. Soap, friction, and running water effectively remove the proteinaceous and fatty materials, and reduce pathogens of concern. Existing data do not demonstrate that alcohol-based hand gel effectively reduces important infectious foodborne pathogens at levels that occur on food workers' hands, especially if the hands are soiled with fatty and proteinaceous materials.

Even in health-care settings, the CDC guidelines recommend soap and water handwashing on hands that are visibly soiled, or contaminated with proteinaceous material, rather than using the alcohol-based sanitizers.

Continued on page 5

Installation of Sprinkler Systems in Non-Sprinklered Buildings

In October 2001 the Centers for Medicare and Medicaid Services (CMS) adopted the 2000 Life Safety Code® (LSC). A report from CMS provided a cost analysis and justification in regards to why sprinklered buildings are critical to the life safety and well being of the owners and public.

When installed properly, a sprinkler system is the most effective device for protecting and safeguarding against loss of life and property. Occupants of a building who are aware of the presence of sprinkler protection can feel secure that any fire will be detected and fought at its origin and that an alarm will be given. Further, an alarm will sound providing time for occupants to take appropriate action. The new rules require existing facilities that are extensively renovated, to meet the requirements of a newly constructed facility, including the installation of sprinkler systems in non-sprinklered buildings.

The Fire Analysis & Research Division of the NFPA has shown that sprinklers are the single most important life safety system in health care facilities. At an estimation of $2.50 per square foot, the minimal installation cost greatly outweighs the risk of a possible catastrophe. Also new for the 2000 Life Safety Code® (LSC) is the requirement that all areas in non-sprinklered buildings be separated from the corridor, by corridor walls that are fire-rated. This requirement, which provides a protected passageway for movement during an emergency, is necessary to increase the safety of the patients, and to allow a safe, protected passageway for the public. The average estimated cost to upgrade a facility to meet this requirement is approximately $7,124 for 1,976 buildings that currently meet the 1967 LSC, and approximately $5,735 for 46 buildings meeting the 1973 LSC.

The following are numerous myths regarding sprinkler systems that <u>are not true</u>:

1. Sprinkler systems do not operate when smoke detectors operate.
2. All sprinklers in the building do not operate simultaneously unless specifically designed to do so.
3. Sprinklers do not spray water that has been superheated by the fire, resulting in the scalding of building occupants.
4. Sprinkler system operation does not cause drowning or electrocution of building occupants.
5. Sprinkler system operation does not increase the amount of smoke generated by the fire.

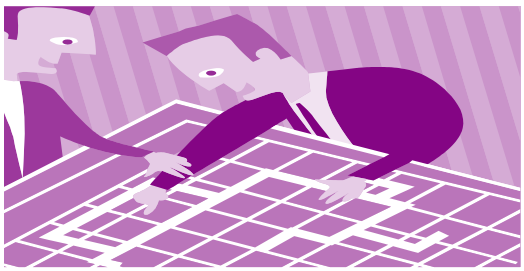
Automatic sprinkler systems remain the single most effective means of controlling fire spread for the widest range of buildings and areas.

-Douglas Taylor, CBO

New Feature for our Readers

The following is a key to topic tags you will see throughout future Square Knots. These tags will help you scan the newsletter more quickly to find those articles relevant to your type of facility.

AC	Acute Care (Hospitals and their facilities licensed by DOH)
BH	Boarding Homes (Licensed by DSHS)
NH	Nursing Homes (Licensed by DSHS)
Other	Alcoholism Treatment Facilities, State Institutions, Psych & Alcoholism Hospitals, Birthing Centers, etc.
All	This tag indicates an article that is relevant to everyone.
CMS	Articles about actions or requirements from The Centers for Medicaid and Medicare Services.



"Defend in Place"... As Fire Protection for Facility Occupants

We all should recall that in elementary school and even, today, in our office buildings, we leave the building in a prompt and orderly fashion when the alarm sounds for a fire drill. Most people believe that fire protection of building occupants is only based upon evacuation.

This evacuation belief is not true for certain building occupants such as those in inpatient and outpatient health care facilities, not to mention occupants in detention and correctional facilities. Most inpatient facility occupants are incapable of self-preservation because of either a physical or mental condition. Outpatient facility occupants may include some overnight patients who are anesthetized or otherwise rendered incapable of self-preservation. Imprisoned occupants of detention centers cannot be evacuated for fear of breaching security measures. Some patients in hospitals and nursing homes cannot exit a building, even with staff assistance, for they may be on life-support equipment. They may have other medical devices hooked to them to sustain life, which may interfere with or even preclude their movement. They may be recovering from anesthesia.

For these specific building occupants, fire protection is based upon protection in place (sometimes referred to as "defend in place"). Protection in place is provided by the Life Safety Code, which requires the following:

- A complete automatic sprinkler system in many facilities, in order to extinguish the fire or at least confine and limit it until the arrival of the fire equipment;
- Compartmentalization to separate the various areas of the building by fire-resistive construction and smoke barriers, to limit the spread of fire, smoke and toxic gases;
- A direct-connect and/or automatic transmission of the fire alarm to ring at the fire department in the event of sprinkler of smoke detector activation.

Fire drills for defend-in-place occupancies are designed for staff, not for patients. Staff are trained to close doors during a fire drill; patients do not participated in a drill and may not even know one is under way.

- Mayer Zimmerman, Life Safety Code Specialist with CMS

Several facilities participate in a program called "R.A.C.E". The acronym RACE stands for **R**elocate, **A**larm, **C**ontain, **E**xtinguish. Although the acronym may vary slightly from facility to facility the general principal is the same. Facilities that appropriately train their staff and provide a higher level of protection such as hospitals and nursing homes are allowed to make their own decision (most likely in conjunction with the local authority) of when it is appropriate to evacuate the building.

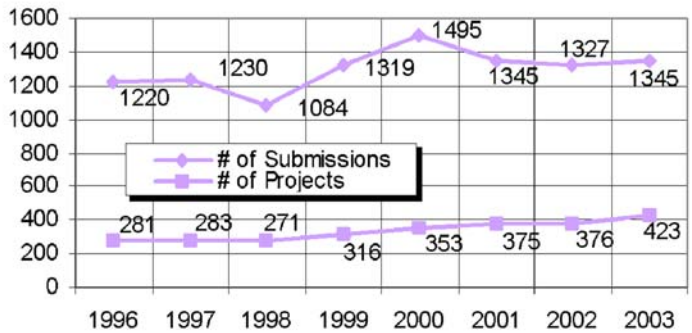
The general steps for such a program are all important. But depending on the situation, they may not necessarily be taken in the order listed:

- ❑ Call out the facilities code word.
- ❑ Activate the fire alarm.
- ❑ Evacuate anyone in immediate danger.
- ❑ Attempt to control or extinguish the fire if possible.
- ❑ Close doors evacuate the smoke compartment.

- Chad Beebe, AIA

Construction Review's Workload

The following table represents the past eight years of Construction Review Services. As of December 1, 2003, 423 projects have been submitted to our review teams. It is anticipated that the number of projects will be about 450 in 2004. Although the number of projects has grown, we have seen a decline in the number submissions per project. We hope to continue that trend by providing more educational opportunities and a more in-depth review during conferences so that initial submission are more complete.



-Chad E. Beebe, AIA

Hand Gels– continued from page 2

CONCLUSION

Proper handwashing, as described in the Food Code continues to serve as a vital and necessary public health practice in retail and food service. Using alcohol gel in place of handwashing in retail and food service does not adequately reduce important foodborne pathogens on foodworkers' hands. Concern about the practice of using alcohol-based hand gels in place of hand washing with soap and water in a retail or food service setting can be summarized into the following points:

- Alcohols have very poor activity against bacterial spores, protozoan oocysts, and certain nonenveloped (nonlipophilic) viruses; and
- Ingredients used in alcohol-based hand gels for retail or food service must be approved food additives, and approved under the FDA monograph or as a New Drug Application (NDA); and
- Retail food and food service work involves high potential for wet hands and hands contaminated with proteinaceous material. Scientific research questions the efficacy of alcohol on moist hands and hands contaminated with proteinaceous material.

FDA and CDC continue to work together to review new data and assure the best public health measures are in place for retail and food service establishments.

-FDA/CFSAN: Food Service Safety Facts, May 2003

Three New Employees for the Construction Review Services Team

Stanley Iwagoshi, RS, joined CRS on November 17, 2003 as a Plan Reviewer. Stanley's education, experience and certifications include the following: BS in Environmental Science from Colorado State University, School of Bio-medical Sciences, graduate work in Public Health from the University of Minnesota, School of Public Health. He is a Registered Sanitarian, State Shellfish Standardization Officer and Inspector from the Federal Food and Drug Administration, Certified Basic Life Safety Code Inspector and Medical Facility Surveyor from the Centers for Medicaid and Medicare Services. Stan's past work experiences include: Environmental Health Representative, County Sanitarian in Colorado, Regional Office Supervisor, Public Health Sanitarian, South Dakota; Public Health Advisor (PHA), Nursing Home Surveyor for DSHS and PHA responsible for the Commercial, Tribal, and Shell-stock Shipper Programs within DOH Food Safety and Shellfish Programs and PHA with the DOH-Residential Care Services for the past 19 months. Stan is also an active member of the National Environmental Health Association.

Cathy Hakola joined CRS as a Secretary Senior. She began working at the Department of Health almost three years ago. During that time, she has gained an abundance of knowledge and experience regarding Department processes. Her positive and energetic approach, as well as the professionalism and excellent customer service she provides, make her a welcomed addition to the CRS team.

John Williams, joined CRS on December 5, 2003 as a Plan Reviewer. John Williams has 10 years of experience in the design and construction of a variety of project sizes and types. He received his bachelors degree in architectural technology from the University of Memphis. John has 7 years of experience working with health care facilities across the nation, including master planning and architectural services. He has also assisted hospitals with patient accessibility surveys and computer aided facilities management.

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DID YOU KNOW? You are more likely to receive a favorable outcome in requests for exemption, substitutions, or alternate materials and methods by providing enough information and data to support your request. Our web site [www.doh.wa.gov/crs] has a checklist you will need to read prior to submitting your request.

Sprinkler Systems (continued from Page 1)

This is different than other occupancies where the area of the floor and/or the number of exterior openings and their spacing may determine the need for such a system.

A licensed care facility with six or fewer clients is not required to have an automatic fire sprinkler system no matter the evacuation capacity of the clients.

Be aware that the state building code is based on a nationally recognized building code as amended by the state of Washington. Prior to August 1, 2003, that state building code was the Uniform Building Code. However, after August 1, 2003 that state building code became the International Building Code. -Richard M. Swanson

The next issue… of the Square Knot is April 2003. Our deadline for articles is February 3, 2004. The next issue will provide you information about:

-2000 Life Safety Code
-Building Green for Long Term Care

You can find every issue of the Square Knot on our web site: www.doh.wa.gov/crs. You may also register to receive a copy in the mail on the same web site.

If you would like to submit an article for the Square Knot, please email it to fslcrs@doh.wa.gov. Articles should be between 350-450 words. The Department reserves the right to edit any published articles. Views expressed in "The Mailbag" do not constitute endorsement from the

Construction Review Services Mission

"Construction Review Services protects and improves the health and safety of people in Washington State by providing professional consultation and review for the design and construction of licensed or certified care facilities for our customers."